

This topic can be found at:

<https://forums accuratereloading.com/eve/forums/a/tpc/f/4711043/m/2861098911>

DWright

05 November 2009, 19:25

Terminal Bullet Performance

quote:

Originally posted by ALF:

The flawed reasoning and pseudoscience regarding the mechanisms of penetration of rigid bodies in biomaterials, displayed here defies logic.

It is not the fact that interesting tests are conducted and observations made that's at fault, it's the error in observation and explanations and deductions made from these erroneous observations that contribute to the chaos of this pseudo science.

Too claim that the numerical entity of Sectional Density, albeit in its incorrect format (  $SD = m / d^2$  ) has nothing or little to do with the penetration process or the behaviour of one rigid penetrating body into another is an example of just how flawed the reasoning is.

Remove the entity of the ratio of a rigid body's mass to its' projected surface area in the direction of its motion and you have no penetration. ( this by the way is the correct definition of SD for a projectile in motion. It allows for all of the critical behaviours a projectile may exhibit over time on its way from case mouth when at rest, all the way to the target, then impact and finally when it comes to rest during penetration.

It has already been discussed, and agreed, that SD does play a role in penetration. However, the nose profile plays a much larger role, and can be the deciding factor in just how much a bullet of a certain SD will penetrate. It, (excuse the pun), 'leads the way' for the SD of the rest of the bullet to do its work properly.

That's the great thing about those willing and able to do comprehensive testing of ideas of the armchair theorist's. It unravels fact's from fiction, and fills in the blanks.

(Fact: The world is flat! I know because it appears so from here).



Michael: Great report! (From one that knows, because he does test.)

<http://www.mazamasportinggoods.com>

michael458

05 November 2009, 19:28

Alf

Once again, thank you for your contribution, once again, Appropriately noted.

Michael

<http://www.b-mriflesandcartridges.com/default.html>

The New Word is "Non-Conventional", add "Conventional" to the Endangered Species List!  
Live Outside The Box of "Conventional Wisdom"

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jwp475

05 November 2009, 19:30

quote:

Originally posted by DWright:

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It has already been discussed, and agreed, that SD does play a role in penetration. However, the nose profile play's a much larger role, and can be the deciding factor in just how much a bullet of a certain SD will penetrate. It,(excuse the pun), 'leads the way' for the SD of the rest of the bullet to do it's work proper.

That's the great thing about those willing and able to do comprehensive testing of ideas of the armchair theorist's. It unravels fact's from fiction, and fills in the blanks.

(Fact: The world is flat! I know because it appears so from here).



Michael: Great report! (From one that knows, because he does test.)

Spot on

---

A 9mm may expand to a larger diameter, but a 45 ain't going to shrink

Men occasionally stumble over the truth, but most of them pick themselves up and hurry off as if nothing had happened.

- Winston Churchill

**michael458**

**05 November 2009, 19:32**

I happened to notice this comment made by DWright over on the thread about a 460 Weatherby.

I stole it from there, to put it over here, DWright hope you don't mind, but it is a good example of how, Velocity is not always your Friend!

DWright

one of us

Posted Nov 5, 8:51 AM Hide Post

I had a Ruger #1 in .458 WM rechambered to the weatherby round. Used it for ground squirrels here in Oregon for awhile. Was a lot of fun, but the straight stocked Ruger was a little rough on my cheek, so finally sold it in favor of the .375 H&H.

I did learn one lesson with the .460 however: I was making core bonded bullets for the .45-70 at the time; around 400 grains as I recall. But they were soft for the 1,800 fps of the .45-70s. I loaded one up to about 3,000 fps in the Weatherby and shot a small blacktail straight on thru the chest at about 75 yards. The deer dropped straight down at the shot. When I got to it, I found it was blown apart as a squirrel shot with a .223. There was a hole in its back end about the size of a 2# coffee can. The stomach was blown out the side for a couple feet. There was very little salvagable meat left above the hocks!

Lesson learned: Use bullets tough enough to hold together for the game and velocity intended!

Cheers!

Stolen by Michael!

I must add however, I don't intend to be eating one of those deer anyway, and I would love to explode one like a prairie dog! 🐕

Michael

<http://www.b-mriflesandcartridges.com/default.html>

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**DWright**

**05 November 2009, 19:51**

Ya, it was pretty nasty. Sad part to, was it was the last Deer I had the oppertunity to take that season. After removing what was left of the hide, I ended up having to let the coyote's have him. Everything above the hocks was bloodshot!

<http://www.mazamasportinggoods.com>

**Extremist458**

**05 November 2009, 20:14**

Good point! I very much believe reliable feeding had a lot to do with the round nose taking hold. And it did work, but not all the

time, hence why we just keep building bigger rifles! If everyone had a Lott with the proper FN back 100 years ago, not much else would have been invented (though I'm sure curiosity would have had it's affect).

Michael, glad to see you upgraded cast bullets. The 460CP is better, but just working around the issue. Still not the best alloy and yes, taking the meplat down works to mitigate the shearing effect, but enough. The reduced velocity might just be what's saving it. With TruShot, they to add silver to the alloy and it does help, but they use very little. Nice bullets for the .44mag though!

Now onto something big! Here is something to think about: how does the composition of the bullet effect it's performance? I'm talking about the material itself. Does lead not act like a shock absorber? Does the effect of mushrooming also steel power away from the terminal performance? In testing, both personal and professional, non expanding bullets not only penetrate further, they also leave greater permanent wound channels, do more damage, and have greater "Shock" effect (we'll leave that for another chapter). So does bullet material, harness and strength affect performance?

-Extremist

"Pain is weakness leaving the body" -Instructor

Victory in life is dying for what you were born to do.

"I hope you live forever" -300

"Never judge an enemy by his words, he might turn out to be a better shot then a writer"

<http://www.gscustomusa.com>

**Whitworth**

**05 November 2009, 20:51**

Michael -- I just sent you a PM.....

"Ignorance you can correct, you can't fix stupid." JWP

If stupidity hurt, a lot of people would be walking around screaming.

Semper Fidelis

"Building Carpal Tunnel one round at a time"

**michael458**

**06 November 2009, 04:07**

Another one to ponder!





Other Bullets to look at.





**458 B&M  
300 Barnes X  
Muzzle Velocity 2502 fps  
25 yd Impact  
17 inches total Penetration**



**458 B&M  
350 North Fork  
Muzzle Velocity 2350 fps  
50 yd Impact  
15 inches total penetration  
Retained Weight 346 grs**



**416 Remington  
340 Woodleigh  
Muzzle Velocity 2550 fps  
Roan @80 yds**



**458 Lott  
500 Swift A Frame  
Muzzle Velocity 2270 fps  
Buffalo @ 40 yds**





Michael

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**Robgunbuilder**

**06 November 2009, 06:07**

A 900 gr woodleigh Soft in a .600Ok at 2400fps looks like a smokin ball of lead. Penetration in oak is about 15 inches. Go to one of my 900 gr Copper Cup Point bore rider at the same velocity and it will go through 6ft of oak and open up to .8.-Rob

Never underestimate the power of stupid people in large numbers to do incredibly stupid things- AH (1941)- Harry Reid (aka Smeagle) 2012

Nothing Up my sleeves but never without a plan and never ever without a surprise!

**PWS**

**06 November 2009, 06:42**

quote:

A 900 gr woodleigh Soft in a .600Ok at 2400fps looks like a smokin ball of lead...-Rob



They sure do! I don't have the numbers on these (other than the included scale). The 900gr Woodleigh from the Big 6 did do surprisingly well for depth of penetration considering the diameter of the cavity and resulting expansion. All were fired in water soaked magazines/newsprint.

**michael458**

**06 November 2009, 15:44**



quote:

Originally posted by Robgunbuilder:  
A 900 gr woodleigh Soft in a .600Ok at 2400fps looks like a smokin ball of lead. Penetration in oak is about 15 inches.  
Go to one of my 900 gr Copper Cup Point bore rider at the same velocity and it will go through 6ft of oak and open up to .8.-Rob

Hey Rob

Oh yes, no doubt the Woodleigh Soft at 2400 would turn into a smoking ball of lead at that velocity.

Hey PWS, sounds like our tests are running pretty close, and using basically same sort of medium?



If I hear one giggle out of anyone of you about my tiny little minor caliber .500 I might bi%%H slap someone!!!! Not a peep!



Michael

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**michael458**

**06 November 2009, 16:02**

For you 51 Caliber fans out there--some results a few years ago with some of the bullets I have on hand. My rifle is a giant 24 inch 11 lb Ruger M77 in 510 Wells. So big I can barely drag it by the muzzle, already wore down the recoil pad on this SC sand!





510 Wells  
535 gr Woodleigh FMJ  
Muzzle Velocity 2320 fps  
Started to veer off course at 38 inches  
Total penetration 42 inches



Meplat is too small for caliber.

510 Wells  
548 gr Barnes Banded (Original 570 grs)  
I had this bullet CNC the profile so it would  
feed in the Ruger action (mistake)  
Muzzle Velocity 2325 fps  
50 yd Impact  
Started to veer off course at 40 inches  
Total Penetration 43 inches, found bullet in  
medium sideways.





510 Wells  
600 Woodleigh Soft  
Muzzle Velocity 2250 fps  
25 yd Impact  
Retained Weight 410-461-500 grs



510 Wells  
535 Woodleigh Soft  
Muzzle Velocity 2241 fps 50 yd Impact  
14 inches of total penetration

Michael

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**CCMDoc**

**06 November 2009, 17:39**

quote:

Originally posted by michael458:

Alf

Once again, thank you for your contribution, once again, Appropriately noted.

Michael

Damn, you're good! 🤔👍

NRA Lifer; DSC Lifer; SCI member; DRSS; AR member since November 9 2003

**STILL waiting for my Taksdale double or a refund**

**Don't Save the best for last, the smile for later or the "Thanks" for tomorrow**

**buffalo**

**06 November 2009, 18:05**

Really a pity I dont live nearby.. If I did I would come by and test my 577 Tyrannosaur. Would like to test penetration of the 800 grs GS Custom FN Solid in .585" at 2500 f/s and the Barnes Banded FN Solid 750 grs at 2600 f/s.. And maybe the Barnes X 750 grs bullet for the 577 at 2600 f/s as well...

**RIP**

**06 November 2009, 18:40**

quote:

Originally posted by CCMDoc:

quote:

Originally posted by michael458:

Alf

Once again, thank you for your contribution, once again, Appropriately noted.

Michael

Damn, you're good! 🤔👍

Paul,  
My thoughts precisely upon reading that response from Michael.



I can't see the pics right now, blocked puter at work, but one of them showed a significant difference in expansion of two bullets at nearly identical velocity ... what was that about? I will get to another puter later.

DRG says: "Kiss my liberal grits!" 🤔

**michael458**

**06 November 2009, 19:16**

quote:

I can't see the pics right now, blocked puter at work, but one of them showed a significant difference in expansion of two bullets at nearly identical velocity ... what was that about?

RIP

Not sure which one, there is a lot here. Very possible I could have made a typo or something. When you get to a proper puter point it out to me, I will investigate the issue.

Michael

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**Extremist458**

**06 November 2009, 21:20**

quote:

Really a pity I dont live nearby.. If I did I would come by and test my 577 Tyrannosaur. Would like to test penetration of the 800 grs GS Custom FN Solid in .585" at 2500 f/s and the Barnes Banded FN Solid 750 grs at 2600 f/s.. And maybe the Barnes X 750 grs bullet for the 577 at 2600 f/s as well...

I would love to see that test! And I think you can drive the 800's the same speed as the Barnes, sure of it. I would like to see the pictues of what I have already seen in testing, and that is the slight expansion of the FN at that speed works to increase penetration and straight line performance. I think that would be awesome. Michael, I can send you some of those .458's for testing, even though they are old, if you give me a call.

Honestly, I think you have way too many bullets veering of course! The number one thing I can see is that they are either soft lead (not my preference) or brass, and too heavy. The length is killing the performance as they just are not stable ENOUGH (yes, there is a difference)! You might really enjoy the results of going a little lighter and/or shorter and seeing where that gets you.

I know this is another topic here, speed, but it's not all bad. Yes, past a certain point it really doesn't help much, unless you have a bullet that can cope with BOTH high and low speed impact. I see this being the down fall of all but a few bullets, and you know I have my preference. Take away the lead, use copper, use a bullet that can expand at low speeds (sorry Barnes x is out) and at high speed (Swift and Partition are out). Then you have something that will work with close range and long. And sorry, but bullets like the partition and swift don't do very well on bone impact. Especially skulls! The best thing I have seen is a bullet that mushrooms at low speed and soft tissue, but will sheer of the light petals at high velocity, when you have excess speed, and turn into a FN! maybe be a little biased, but you cannot hide from the facts; they work.

Now, what are your thoughts on bullet material and density in regards to penetration?

-Extremist

"Pain is weakness leaving the body" -Instructor  
Victory in life is dying for what you were born to do.

"I hope you live forever" - 300

"Never judge an enemy by his words, he might turn out to be a better shot then a writer"

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**.458 Only**

**06 November 2009, 21:27**

Michael,

Those 350gr TSX at impact velocity of about 2400 fps look nearly identical to mine at impact velocity of 2500 fps+. They were fired from my CZ at 2750 into a target at 100 yds. I managed to retrieve a couple from the backstop of natural earth (mostly fine sand)plus a few small rocks and multiple fragments of lead and jacket material collected over several generations.

I also fired one from my Ruger No.1 in 45-70 (long-throated) at 2470 fps into a box of hard-dry glossy magazines at 20 yds. Penetration was 8.5", the box moved a few inches away from me, the TSX lost one petal but retained 81% of its weight (284grs). That was a tough test I use to compare expanding bullets for toughness and integrity (not penetration). I'm very pleased with that bullet in both of those rifles. It is supremely accurate as well.

Used one on a medium black bear in September from my CZ. Range was 90yds, a dead-center frontal hit and it exited just in front of the right hip. When I get time I'll look for that TSX.

The 350 Hor. FN looks very good in your results. Much better than the RN in my tests. Nothing like pictures to tell the tail. Thanks.

Bob

[www.bigbores.ca](http://www.bigbores.ca)

"Let every created thing give praise to the LORD, for he issued his command, and they came into being" - King David, Psalm 148 (NLT)



quote:

Honestly, I think you have way too many bullets veering off course! The number one thing I can see is that they are either soft lead (not my preference) or brass, and too heavy. The length is killing the performance as they just are not stable ENOUGH (yes, there is a difference)! You might really enjoy the results of going a little lighter and/or shorter and seeing where that gets you.

Extreme

Take a close look---Round Nose Bullets veer off course--don't have nothing to do with soft lead, length, brass, heavy, light every part of veering off course is ROUND NOSE PROFILE SOLIDS. The only FN that went off course was the 900 gr 600 Overkill at 1700 fps--it was merely unstable at that velocity for some reason???? At 1900 fps it gave 100% straight line penetration. No expanding bullets go off course at all. Just Round Nose Solids. All the long Barnes FN solids penetrate deep, and straight. Go back, take a closer look!

Quote from Extreme "but will sheer of the light petals at high velocity, when you have excess speed, and turn into a FN! maybe be a little biased, but you cannot hide from the facts; they work." quote

A complete discussion on this is coming---Non Conventional Bullets!

Also not hiding from the facts, but in fact using the facts! See the 500 MDM in Australia thread!

<http://forums accuratereloadin...911090021#2911090021>

Bullet Material and Density in regards to penetration?

Good question, simple mind--ME. Material and construction of many of the older, and some of the recent lead core FMJs are a concern to me, hitting bone, breaking, or bending. I hear reports--never experienced this--but some of the first Barnes solids breaking, also some of the first Trophy Bonded solids. I have driven some of the new Barnes FN solid and those that I use in the .500s thru lot's of bone, and tested in several materials even more dense than bone without any issues at all, crunch and munch straight through. So with the Barnes today, and the bullets I am using in .500 caliber there are no such issues.

Density, and I am assuming we are talking about a shorter bullet, tungsten filled, something like that, heavy but shorter? I really don't know to be honest. What I do believe is that it would be fine, but you better put a Flat meplat on the front to make sure! I am a Hard Core believer in a Flat Nose solid. Three things that a solid needs to penetrate deep and straight--#1 Flat Nose--#2 Flat Nose--#3 Flat Nose. Those 3 things pretty much sums it up as far as I am concerned, there are a few exceptions, but this is BIG BORE--not mediums.

Michael

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**RIP**

**06 November 2009, 21:56**

Michael: Will do, when I can see pics again.

Interesting that greater speed got the 6000K stabilized, greater revs, from same twist, gyro stability attained for entry, straight-on attack.

Yes indeed, a round nose is inferior to FN in game.

I could never keep a round nose solid of any sort stright in the IWBB.  
They all exited the sides after half the penetration of an FN.  
I had to quit RNS due to expense and trouble of repairs to IWBB side members.

buffalo:

That will be an interesting contest:

copper GSC FN .585/800gr @ 2500 fps  
vs.  
brass Barnes BFN .585/750gr @ 2600 fps

I predict a tie, or the Barnes to win by a nose.  
Similar to my IWBB test of  
GSC copper FN .395/340gr @2700 fps  
vs  
S&H brass FN .395/330gr @2800 fps  
S&H won there,  
with similar weight and velocity factors relative to caliber.

The GSC FN started off with a slightly larger meplat that got a little larger at impact. The brass S&H FN started with smaller meplat that expanded less (though some measurable expansion of the brass at such high velocity).

I predict much less penetration to be attained by the TSX .585/750gr @ 2600 fps. Maybe 40 to 50 percent less depth, and petals lost along the way, but not before they act as a drag chute.

Extremist458,

This thing about the expansion of the GSC FN copper nose causing greater penetration:

Due to center of gravity shift forward and greater shoulder stabilization by the larger resulting meplat?

This must overcome the greater drag resistance of larger nose diameter, or is that also making for greater supercavitation?

Larger meplat in some tissues such as solids and viscoelastics must surely decrease penetration.

I ask this at risk of being accused of flinging turds in attempt to start a shitstorm.

However, I think, based on my IWBB testing, that the proper brass alloy that maintains an optimum flat nose meplat size, without expansion or fracture, will win the race in the long run.

The sharp cutting edge of the FN meplat is something else to ponder, as in Norbert's super penetrators or Woodleighs new beer bottle solid.

DRG says: "Kiss my liberal grits!" 🤪

**michael458**

**06 November 2009, 22:01**

458only

I am a huge fan of that .458 caliber 350 TSX. I think it would make a perfect bear bullet in any 458. I use it in my 458 B&M and it is super accurate, and I know it will perform fantastic. I wanted to try a couple on buffalo when I was in Australia, but the POI was so far from where the 450s were I had concerns about that. So did not. I honestly think they would have done fine, even on buffalo.

Your test is tough--dry magazines are not too far under wood, solid wood. Very tough material. So it would without doubt put a tremendous amount of stress on any bullet.

Michael

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**dean119**

**06 November 2009, 22:07**

Michael,

Is that 350g SAF the new one designed for the 45-70? I was wondering how that would do at 458 velocities, looks pretty good.

**michael458**

**06 November 2009, 22:40**

Buffalo

I imagine your bullets would do very good, deep and straight with a tremendous amount of "energy transfer" to target. Probably about 1 round and have to dump a lot of shredded and chewed up wet mix! However, don't ask me to do the shooting! Thats for you to do, I play record keeper, bullet digger, and errand boy!

RIP

I am no expert on the 600 but I did find it interesting that at 1700 it was unstable--1900 driving straight.

Yeah, not much need to test anymore RN in 416 + at all, I get exactly the same performance every time in all the big bores I test.

You bring up a very interesting point about getting to a point with either large diameter or large meplat and penetration being reduced? I have little to go on in this area other than the test with the 900 gr 600 OK Barnes at 1900 and the 500 gr Barnes 458 at 1800, the 500 458 Barnes penetrated deeper? Meplat/diameter, I don't know? I think an area that could use some study!

Michael

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**michael458**

**06 November 2009, 22:44**

Dean

Very pleased with the 350 Swifts too! Yes, would be a very good 45/70 bullet at 2000 fps or so, near perfect for that. They would handle a bit more velocity too. Maybe I should load some up in the 458 Lott at 2700 or so????

Michael

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**michael458**

**06 November 2009, 22:58**

New addition for extreme bullet terminal performance testing!

Told you guys early this week I really needed a new box for trying to catch some of the big flat nose solids that was burning thru 62 + inches of medium and out the back of the box.

It is complete and ready now! The new box is open ended, both sides. It butts up straight and level with box number one, giving us a continuous medium for at least 125 inches! If we can't stop these in that much medium, then we should just see how many elephants we can get lined up for one shot, 3 maybe more at least!!!!



Now this is really good, but I did put a little good old South Carolina thought in to this before hand. I even had it designed for all Round Nose Bullets too See Below!!!





Michael

<http://www.b-mriflesandcartridges.com/default.html>

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**RIP**

**06 November 2009, 23:22**

Dang fascinating thread!  
Love to look at spent bullets, on a puter not blocked, looking forward to home time this evening.

I qualified my prediction of buffalo's test:

I certainly do not believe that a bigger FN meplat is better.

I think a seven degree truncated cone is best, and the sharper the edges of the FN meplat, the better.

"7-degree FN": That's a cone with a 14-degree apex angle, shopped off square to give the FN meplat, with 7 degrees semi-angle/hemi-angle "per side" of the FN nose, as per our custom of describing shoulder angles on cartridge cases.

**buffalo:**

**That will be an interesting contest:**

**copper GSC FN .585/800gr @ 2500 fps**

**vs.**

**brass Barnes BFN .585/750gr @ 2600 fps**

**I predict a tie, or the Barnes to win by a nose.**

**Similar to my IWBB test of**

**GSC copper FN .395/340gr @2700 fps**

**vs**

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**S&H won there,**

**with similar weight and velocity factors relative to caliber.**

**The GSC FN started off with a slightly larger meplat that got a little larger at impact.**

**The brass S&H FN started with smaller meplat that expanded less (though some measureable expansion of the brass at such high velocity).**

**I predict much less penetration to be attained by the TSX .585/750gr @ 2600 fps. Maybe 40 to 50 percent less depth, and petals lost along the way, but not before they act as a drag chute.**

But!

The Barnes BFN has an ogived FN that is not as good as the truncated cone shape of the GSC FN and S&H brass FN!

The Barnes BFN is like a round nose with a flat spot on the end of it!!!

Still too close to call?

Or, if nose shape is everything, the GSC will win ...

DRG says: "Kiss my liberal grits!" 🤪

**fredj338**

**07 November 2009, 01:05**

I know Alf doesn't like unscientific home testers, but I find wetpack a good medi to test in. The bullet on the right was from my buffalo @ 75yds, the on on the left from wetpack @ 20yds. Factor in the extra 55yds of vel. pretty darn close. Close enough to give me an idea what my bullet would do before I took it hunting.





LIFE IS NOT A SPECTATOR'S SPORT!

**SAFARIKID**

**07 November 2009, 03:20**

I see you test and test....and test some more!...Have you ever tested the 600grain loads in the Lott?...One of my PH's over the years told me he has seen the 600gr solids from a 460 Weatherby zip through elephant? I know how some tend to exaggerate, but I do have some (softs) loaded in my Lott and you feel the difference when they go off..Just wondering if they would do better

"That's not a knife..THIS is a KNIFE" !

**capoward**

**07 November 2009, 06:21**

quote:

I am no expert on the 600 but I did find it interesting that at 1700 it was unstable--1900 driving straight.

Could this perhaps be induced by or exacerbated by two slow of a twist rate?...potentially eliminated by a faster twist rate?

Jim 🤖

"Life's hard; it's harder if you're stupid"  
John Wayne

**RIP**

**07 November 2009, 09:10**

Michael,  
My confusion over one of the pictures was due to using the iphone to look at it.  
Yes, its true that a full size monitor screen "reads easier" than an iphone.  
It made sense when I could read the difference between the two expanded bullets was a difference of about 200 fps.



Nevermind, please.

Alf,

Thanks for the latest installment. 🙌🙌

Why do the submariners put a little disk on the nose boom of the 300 mph underwater torpedo?  
That could not possibly be enough mass to be significant in redistribution and center of gravity forward shifting.  
Seems reports on that said it reduced resistance by the improved cavitation.



At some point does not the enlarging FN meplat increase resistance so that it negates the improvement of shifting center of gravity forward?

Straight cylinders do not penetrate as well in game as a 7-degree truncated cone FN.

DRG says: "Kiss my liberal grits!" 🤖

**RIP**

**07 November 2009, 10:52**

Thanks, Alf.

Got it. You meant "turned at 90 degrees" (side on) in that last sentence, eh? Granted, that 90 degree swing is just the first part of an 180-degree flip.

So the flat meplat works more by shoulder stabilization, keeping the overturning force centered on the nose projection, and less by CG effects, nor by imaginary "super cavitation," eh?

An expanding meplat increases resistance and will destroy stability if that expansion is in the least asymmetric, and thus nose expansion can only decrease penetration ... except for some compensation of the bad juju by shifting the CG forward.

SDxV is the supreme driver. Non-deforming FN nose shape is just the optimizer that limits the loss of Mo/XSA.

DRG says: "Kiss my liberal grits!" 🤖

**michael458**

**07 November 2009, 15:39**

Fred

You are exactly correct, that is what it is about, to give you some sort of idea of what your bullet is doing BEFORE you go to the field with it. Looks SPOT On to me! Excellent job!

Kid

Yes, test, test it again, and then find another test sometimes! No I have never tested the 600s in 458 Lott. I really have not paid too much attention to what 600s are available, I have some Barnes Originals from probably 10-12 yrs ago, just have not got around to them yet! 458 Lott is one of my most favorite cartridges in the world! I have several of them and have used 458 Lott in the field more than any other 458 caliber. But have not messed with one for several years now, the B&M series put the Lotts and the rest into early retirement. Since my 458 B&M is too short for real heavies like the 550 Woodleigh Soft, and the 600s I have paid little attention to them recently. Did some tests some time ago with the 550 Woodleigh, very good bullet, especially for buffalo. What 600s are available these days in 458 caliber????

Michael

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**michael458**

**07 November 2009, 16:16**

quote:

Originally posted by ALF:

Like this whole notion that somehow Nose shape is everything and mass its nothing, and yes RN bullet veer off into nowhere..... but no one, and I mean no one here has actually stated why these bullets veer off course? but no one, and I mean no one here has actually stated why these bullets veer off course? .

if we use two FN bullets, same mass, same velocity but we change only the size of the meplat, which one wins in the penetration game ..... the one with the least drag ie the one with the greatest Sectional density..... so much so for sectional density having no role ?

We shoot a 30 cal solid low drag 168 gr at 1000m  
The book says SD = .253 or thereabouts.

Hi Alf

Once again, thanks for the contribution, but would like to point a couple of things out, which may save you some time, and energy. Obviously you have an abundance of both. And it is appreciated.

I have outlined a couple of things from your previous two posts that I should address myself.

First one is that you point out that NO ONE--Myself much included has pointed out why the RN bullets stray off course. We all agree they do so, so that is established. Now please do not take offense to this statement as it really is not meant to be ugly, I DON'T CARE WHY THEY VEER OFF COURSE--THE FACT THAT THEY DO AND DO SO CONSISTENTLY IN BIG BORES ABOVE 416 CALIBER THAT I HAVE TESTED IS ENOUGH FOR ME! I stated in the very first post on this thread the fact that I AM NO EXPERT--I



TEST FOR MYSELF AND NOT FOR YOU. I TEST TO HAVE PRIOR KNOWLEDGE BEFORE GOING TO THE FIELD, IN WHICH I TEST AGAIN ON ANIMAL TISSUE, BUT NEVER WITHOUT HAVING A SUCCESSFUL TEST ON THE RANGE. Or at least most of the time anyway. 100% of the time that I had a successful bullet in the test work--It was successful and performed as expected in the field on animal tissue-- 100% of the time that a bullet failed the tests on the range, it also failed in the field on animal tissue, the few that I did not listen to my test work.

This is within my first post, and probably more in some of the rest. So please, again, no offense, but I really don't care why, it just is, and that is enough for my purposes. I am not in the bullet design business and don't wish to be, I am completely satisfied just to shoot good and proper bullets and kill things with them! The mathematics and the whys I would just as soon leave up to you and others which are far more qualified than I am to do so. I think that if you receive any resistance to your contributions the problem is that like myself, some do not really care about that part of the equation. Now your energy is fantastic, thanks. And I promise this to you personally I really am not trying to be smart or ugly with you, just stating a fact.

#### Second Point

Size of meplat is important, both less and more. I have tested smaller meplat bullets and there is a point at were the smaller meplat stabilizes the bullet no better than that of a normal RN design. Point in case, the new Hornady DGS, it faired no better in my work here than the Woodleigh FMJ RN bullets tested. Going the other way, too large of a meplat, well maybe there too. There will be some tests in the near future concerning this very idea. Too large of a meplat will have zero effect on straight line penetration, but depth of penetration could be effected, possibly, I don't know that to be true, need to test it and we will.

Again, this is stated above, I will illustrate again for you. SD has a role, but nose profile must be dead equal for it to come to play, as I have in fact stated. Example;



Both these bullets have the exact same nose profile--one at 510 grs with an SD of .291--the other 550 grs with an SD of .314. The 550 gr bullet out penetrates the 510 every time, when all else is equal and the only difference is SD then SD is the deciding factor. Already stated above, in your excitement about this thread I suppose you missed that, I do that too sometimes. No worries!

Third and perhaps very important to me.

This is big bore and big bore bullets, how they test and how they react and work on big tough animals. I really do not give a flying crap about 30 caliber anything. It means nothing to me, don't even like them, have several of them and as far as I can tell pretty damn useless to me except for shooting rats, and I ain't no rat shooter, so leave anything less than .400 caliber out of the thread as it does not belong on my thread! Thank you for your compliance with this request ahead of time. I promise if I ever start shooting minor calibers on a serious basis we can take it down to the minor caliber forum and can discuss it there. But to be honest with you, that may be some time from now, a very long time in fact, if maybe never. No 30 cal's in this discussion please.

Thank you again.

Michael

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**michael458**

**07 November 2009, 16:35**

RIP

No issues on the iphone screen. You are far beyond me in that arena, I would have a hard time seeing the damn screen, much less anything within it!

""An expanding meplat increases resistance and will destroy stability if that expansion is in the least asymmetric, and thus nose expansion can only decrease penetration""

In 100% agreement with. I know you have done some high velocity work with these correct? Seems I recall Gerard saying deformed does not matter? I am not sure of that statement or not, just a recall. I am going to have to get my hands on some GS bullets to play with somewhere, anyone got a clue to where I can buy some here in the states? I have not had time to look. I could get some NF too.

RIP doing a jam up job on \$\*%& X (\$(%U and + FBN to equal OLK. Please within this thread handle that for me!

Also soon we will enter into the Non Conventional bullets and your expertise in that arena will also be very very much appreciated. You know I was behind the times with those, and still catching up some!

Thanks to all so far, this is turning into an excellent discussion and I think one of extreme importance!

Michael

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**michael458**

**07 November 2009, 16:39**

ONE MORE THING TODAY

I am not going to let this go until I hear some comments--Gees I really thought this was a great concept so that maybe we could manage to keep some round nose bullets in the test medium---but no one has said a damn word about how clever I was on this concept!!!!!!



Michael

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**jro45**

**07 November 2009, 16:56**

You have a nice set up. I have a 25' range I reload for 34guns. I been doing that for 40 years.

**jeffosso**

**07 November 2009, 18:02**

mm,  
dont bother

#dumprump

**opinions vary** band of bubbas and STC hunting Club

Information on **Ammoguide** about  
the [416AR](#), [458AR](#), [470AR](#), [500AR](#)  
[What is an AR round?](#) Case Drawings [416-458-470AR](#) and [500AR](#).  
[476AR](#),  
<http://www.weaponsmith.com>

**michael458**

**07 November 2009, 18:21**

Alf

Top of the morning to ya!

Excellent, We must be in agreement, as there is no where else it could go. From the beginning, yes, I made a "rule" FN out penetrates RN--almost, all the time. But it is as I stated several times, A "Rule of Thumb" in most of my test work, done for myself. Agree or not agree is anyones option, and that is fine with me. I am very very sure, there are many holdouts that are in strong disagreement with me, and the test work, and all are entitled to their opinions, as also stated in my previous posts. Also stated several time, there are no 100% absolutes in this, nor in many things we do.

Rules of thumb, that's the only rules I make, and make them for myself.

Now I assume very little, but over many years of putting metal to wet print, and then putting metal to animal flesh, I have come to the conclusion that this is a medium that I can count on to give "reasonable" results so that I might be able to go to the field with confidence, however I do want to point out, that until I put bullet to flesh on the given mission for said particular bullet, until it completes that mission IN FLESH, then I am suspect of it until proven. But thus far, the test work has not been proven Wrong! Even to the point that I can correlate data from one test medium to the other, with reasonable confidence. I have put the FN bullets thru the paces on big, tough critters, including elephant and buffalo. Still want to hammer some hippo with my .500s (have with 458s), but pretty damn positive that I have accomplished all my goals, for the bullets I am using and shooting.

And the point I want to get across back to you is, I am not an engineer, and I am not trying to find out what is best for punching wet paper, and Yes, the same thus far does apply to skin, muscle, and bone, at least on elephants, hippo, buffalos, lions, bears, leopard, elands, elk, reds, moose, wolf, kodus, zebras, and many many more. I am a shooter first and foremost, and a Forester by profession which allows me to be a shooter. I have put enough metal to animal tissue to know the correlation between the two test mediums.

Now being just a simple country boy forester, and not an engineer by any stretch, I would have to agree with you concerning the "flu shot" issue. I am in 100% agreement with you that I want a sharp needle punching thru my skin when the time comes, no issues with that. But the problem is, will that needle punch thru several feet of animal tissue? The other point, you make yourself, which needle do we want to use? Give me the sharp pointy one please, as the blunt needle with a flat meplat is going to hurt as it penetrates, causing me trauma, pain, and energy transfer to my body, exactly the same as a flat meplat bullet does!

100% correct--I also prefer to shoot animal tissue with FN bullets as you are correct they are in fact more stable during terminal penetration than RN bullets.

Since this is highly geared to big bore bullets and big bore rounds, human tissue is not much of an issue, hell even a round nose in 416 + can probably accomplish that mission



Good Alf, think we are on the right path!

Michael

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**michael458**

**07 November 2009, 19:01**

Alf

Once again an excellent point, and I am pretty much in agreement concerning wet print and animal tissue, pretty much, not completely.

As for the density issue, this is why I insert a mix of catalogs/magzines which makes the medium 35% tougher than wet print alone, which would bring in closer to muscle tissue considered in the study you present.

In addition to this point, you do not consider that any animal is not solid, thru and thru muscle? You have some skin, you have some bone, some muscle, some liquid, some air within the cavity, then back out again--no such creature I know of is made of solid muscle thru and thru, solid bone thru and thru. Or even solid liquid thru and thru. Therefore this explains another point the fact that In ALL cases, I get less solid penetration in my wet print/catalog medium than I do with the same bullet in animal tissue. Stated before in this thread, Rule of Thumb only--80-100% more penetration with expanding bullets in animal tissue and 35% more penetration with given solids in animal tissue, than in the mixed medium I use. Again, enough bullets in both to have some correlation between the two. Again, just a Rule of Thumb, there can be exceptions, and there are zero absolutes.



Good information, and thanks for adding it, as it helps me even understand my own medium even more so than before.

Michael

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**DWright**

**07 November 2009, 19:56**

Veral Smith put out a small handbook several years back entitled: 'Jacked performance with cast bullets'. In his book he discusses why he makes his bullet moulds with a large FLAT meplat for maximum, straight line penetration with his bullets. Essentially, I think what he say's is that the flat nose forces all the matter it contacts out at right angles, and that matter then act's as a 'sheild' so to speak, and deflect's this matter from contacting the sides if the bullet which would cause it to ver off course, and thus ALLOWS the SD of the bullet to do it's work.

Or, in the words of a country boy like myself;  
That big A## flat point blows all the bone, muscle, and anything else, straight out to the side, and makes a big A## hole on thru stuff.

This flat point keeps any matter from applying pressure at an angle to any part of the bullet to knock it of course.

Veral does a pretty good job of discribing this action. Pretty basic really.

Ask any ditch digger!

Take a big round pointed digging bar. Slam it down in the dirt and make a hole. NOW, slam it down right along side and catch the outside edge of a rock. The point will sharply veer off to the side.

Now, do the same with a bar that has a full dia., perfectly flat end on it and hit the same rock edge. It will either stop without veering anywhere, or knock the edge off the rock as the corner of the flat point digs straight in.

Hmmm, kinda just like a flat point bullet.

There, hope that helps.  
Cheers!

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